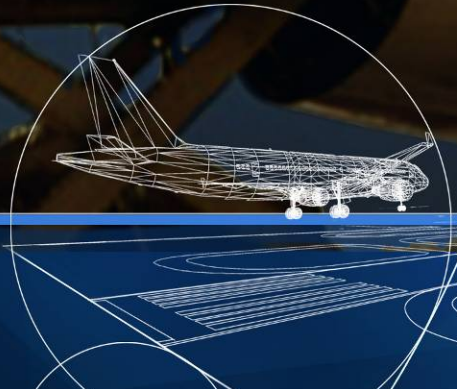
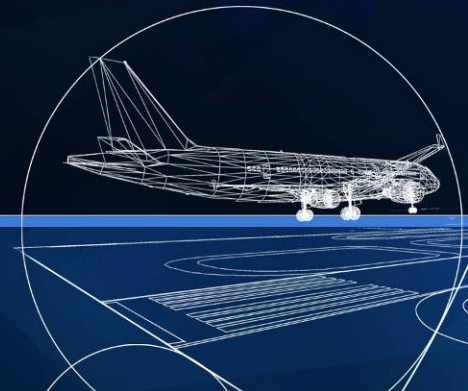


# Evolving Air Cargo Demand in China

**32<sup>nd</sup> FAA Aviation Forecast Conference**  
**Friday March 16, 2007**  
**Daniel B. Muscatello**  
**Managing Director, Cargo and Logistics**  
**Landrum & Brown, (513) 531 -1250**

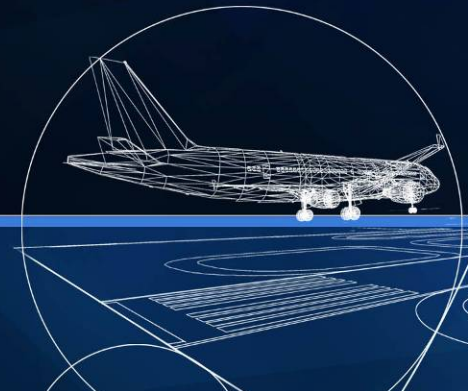


**“By virtually any measure of economic growth, China is the leading nation in the world”.**



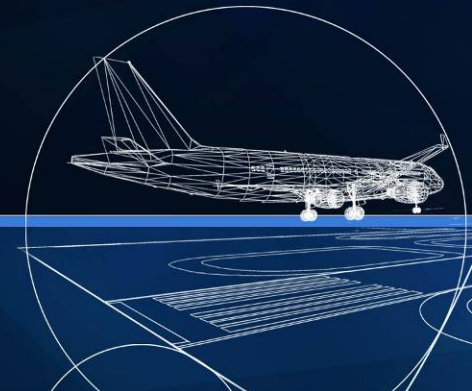
# China – Basic Facts

- Land area of 9.6m sq km, similar to the United States
- Population approximately 1.3 billion people
- Market opening reforms started by Deng Xiao Ping in 1978
- GDP growth averaging about 8% per year since 1997 and is expected to continue.

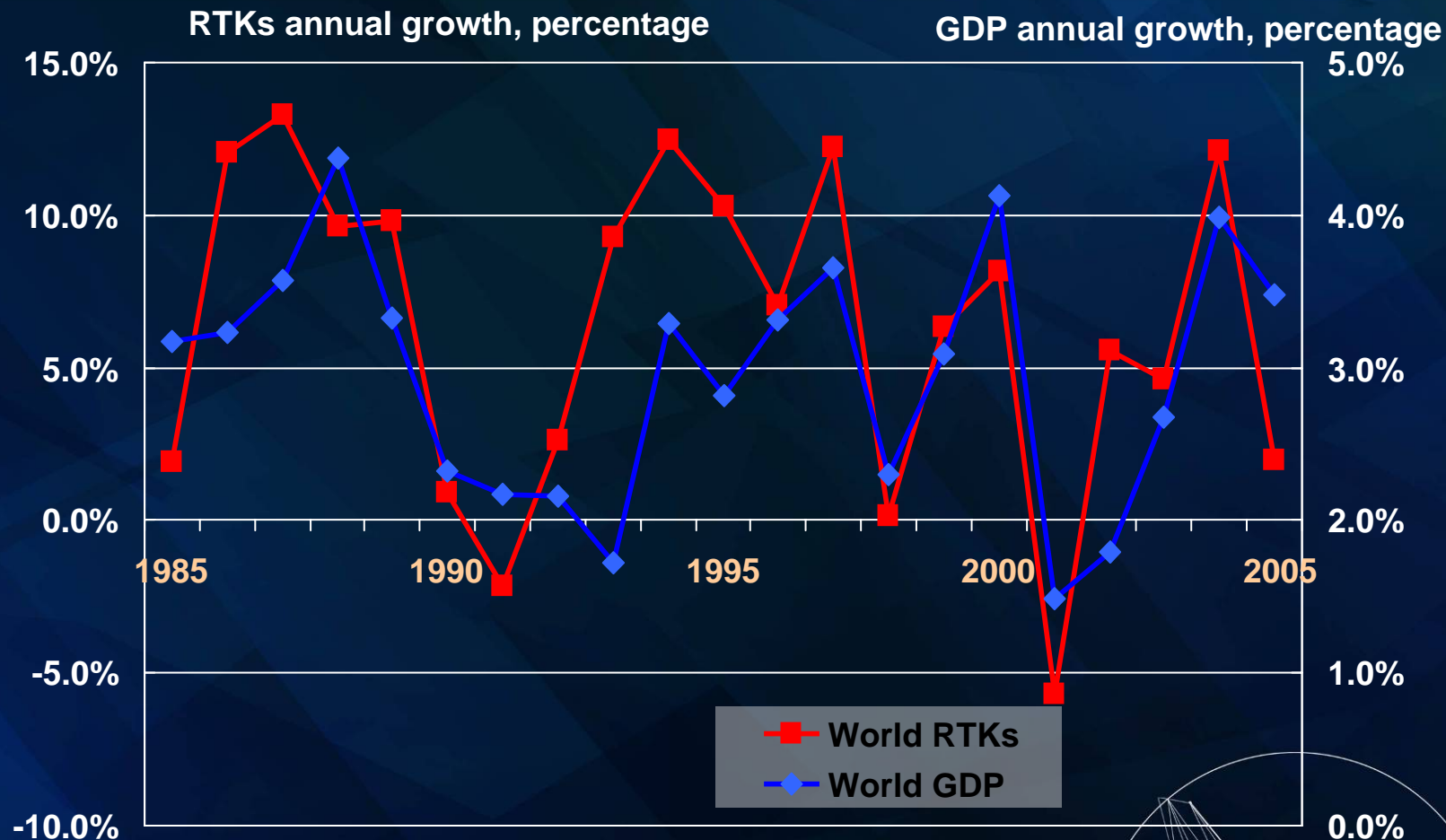


# China – GDP Growth

- Per capita GDP has risen from US \$233 in 1978 to over US \$1,000 today.
- Expected to reach US \$3,000 by 2020
- China's 2004 per capita GDP based on Purchasing Power Parity at US \$4,580
- US per capita GDP of US \$40,100 based on the PPP method of calculation

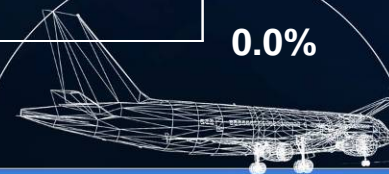


# Air Cargo Traffic Growth is Influenced by GDP Growth



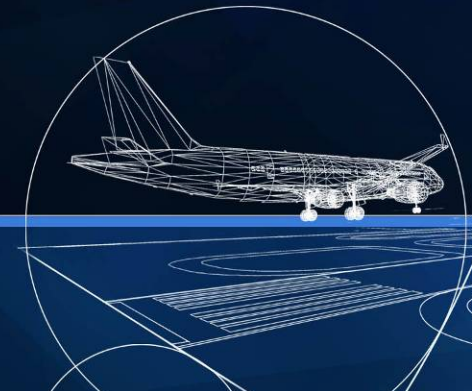
Courtesy of Boeing

*Historically Air Cargo has Grown  
2.3 Times Faster than GDP*



# Early Growth Strategies

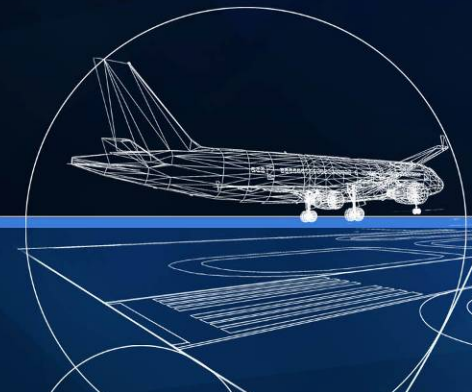
- Substantial move towards urbanization as a result of labor force migration.
- Formal government policies are in place that support the formation of new cities.
- Government is committed to substantial investment in local infrastructure.
- Initial focus on eastern China to capture trade with North America and Asia



# Imbalanced Growth

	West	Central	East
Land Area:	71.5%	17.4%	11.1%
Population:	28.5%	33.2%	37.3%
GDP:	17.0%	25.2%	57.8%
Trade:	3.3%	4.2%	92.5%

- source: National Bureau of Statistics China

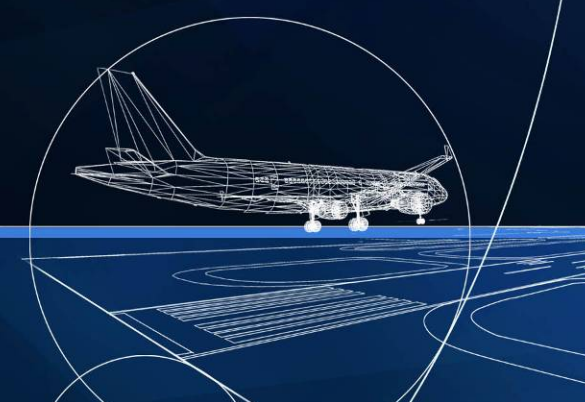


# Airport Passengers 2005

中国  
China



Airport Name	Passengers-2005
Beijing - PEK	41,004,008
Hongkong - HKG	40,740,000
Shanghai - PVG	23,664,967
Guangzhou - CAN	23,558,274
Hongqiao - SHA	17,797,365
Shenzhen - SZX	16,283,071
Chengdu - CTU	13,899,929
Kunming - KMG	11,818,682
Hangzhou - HGH	8,092,641
Xi'an Xianyang - XIY	7,942,034
Haikou - HAK	7,027,397
Chongqing - CKG	6,631,420
XMN - Xiamen	6,585,489
Qingdao - TAO	5,879,552
Dalian - DLC	5,407,452
Nanjing - NKG	5,385,933
Changsha - CSX	5,301,396
Harbin - HRB	3,222,907
Zhuhai - ZUH	657,117



# Imbalanced Growth

- Focused on eastern China

Bohai Bay – North Beijing, Dalian, Tianjin

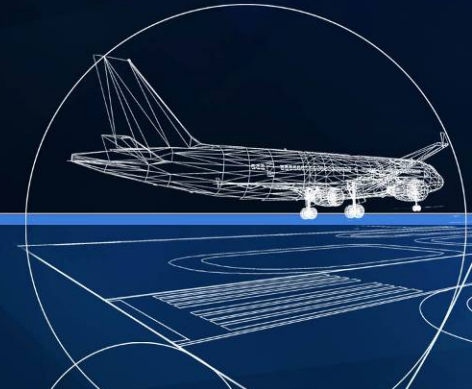
Yangtze River Delta -  
Central Shanghai, Nanjing

Pearl River Delta –  
Hong Kong, Guangzhou, Shenzhen,  
Macau



# Aviation Market – Air Cargo Growth

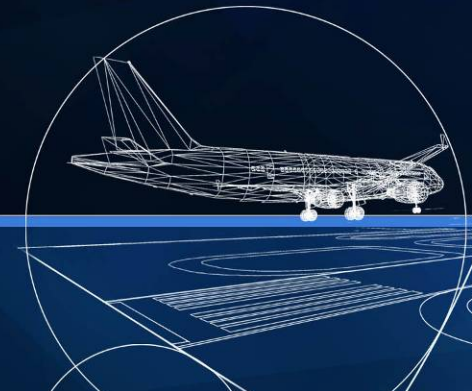
- Average annual growth for the past decade of 14%
- Forecast growth to 2020 - 8.6% to 14%
- 27 million tons Forecast throughput by 2020 - second largest air cargo market in the world
- Airline traffic to grow by 10% per annum to 2020
- Driven by export of consumer and high-tech goods and imports of capital equipment and high-value manufacturing components



# Aviation Market - Administration

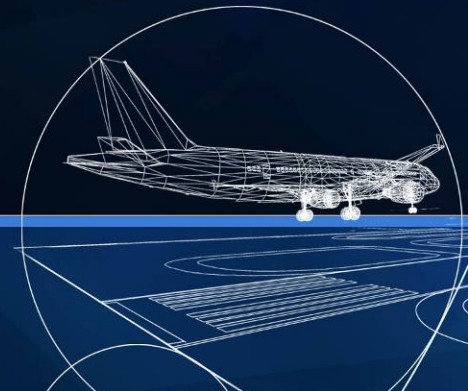
CAAC – new role as market regulator

- Modeling itself on the US FAA
- Oversees all of the country's main international gateways
- 93% of other airports administered by local government
- Negotiates bilateral agreements



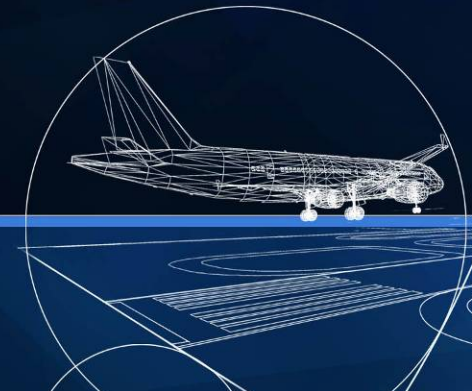
# Airline Restructuring

- Focuses on helping domestic carriers compete in a more competitive market
- Facilitates industry consolidation
- In 2002, ten carriers under CAAC administration merged into three groups under China Southern, China Eastern and Air China



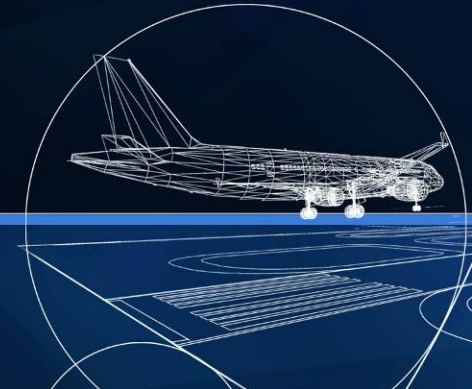
# Market Strategies and Issues

- Increase access for foreign carriers which carry about 60% of China's international air cargo
- Add capacity of foreign carriers at major gateways but also at some secondary airports
- Improve roadway infrastructure
- Sub-par cargo handling facilities
- High on-airport cost structure



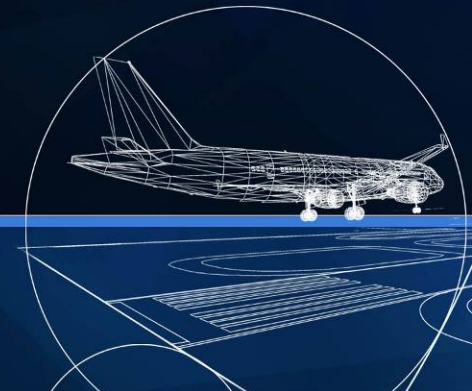
# Domestic Air Cargo Market

- Primarily served by the three main airline groups - China Southern, China Eastern and Air China
- Domestic air cargo volumes growing faster than international
- Goods carried comprise mainly perishable foods, clothing, electronics and medical products
- Growing interest in the creation of private all-cargo carriers



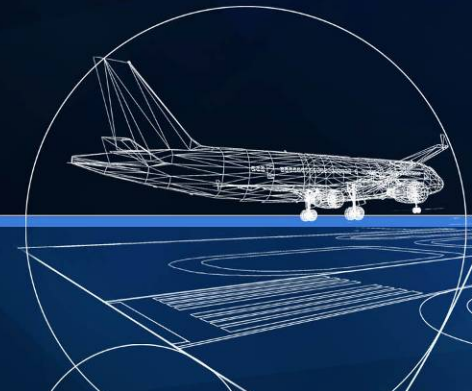
# Airports

- About 150 commercial airports. China will have nearly 250 airports by 2010
- Over 50% of international air cargo traffic handled by three main airport groups: Beijing/Tianjin, Shanghai, and Guangzhou/Shenzhen
- Major secondary airports include Macau, Chengdu, Kunming, and Dalian



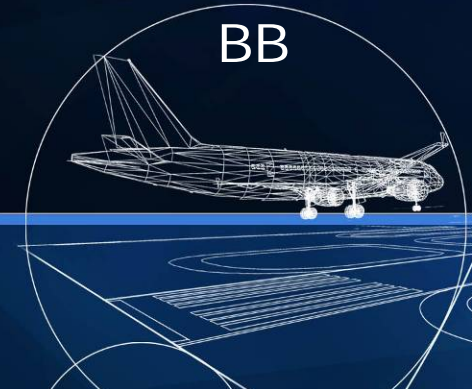
# Hong Kong

- Still the dominant air cargo gateway to mainland China
- Extensive international route network and the transit point for cargo between the mainland and Taiwan
- Declining overall market share
- Addressing integration with the mainland and its customer base

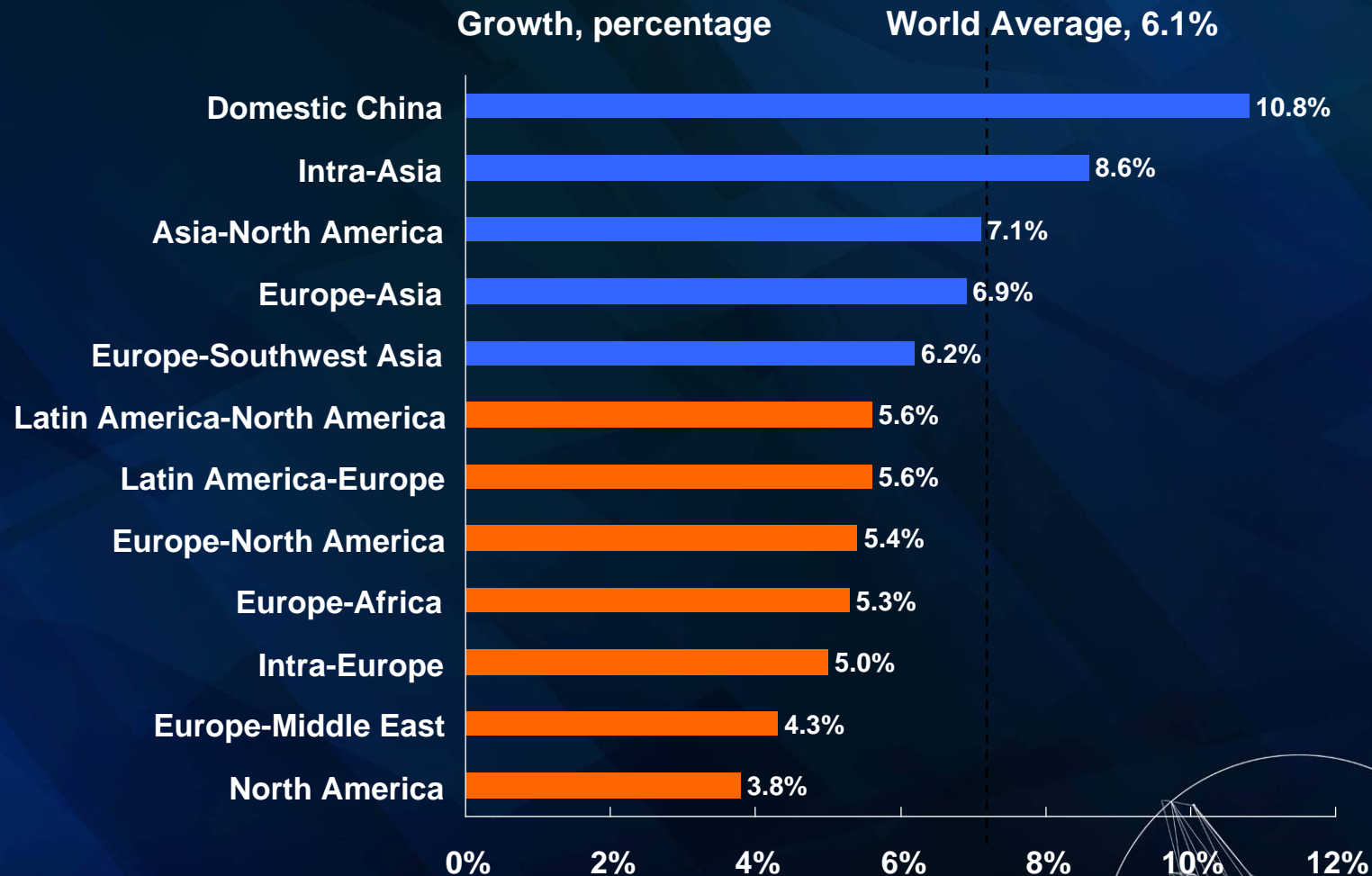


# Chinese Cargo Airports - 2005

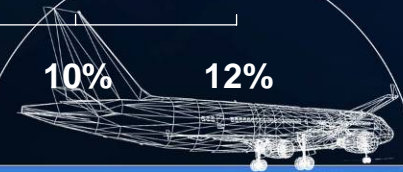
<u>Airport</u>	<u>Tonnage</u>	<u>Region</u>
Hong Kong	3,400,000	PRD
Shanghai (PVG)	1,900,000	YRD
Beijing	800,000	BB
Guangzhou	600,000	PRD
Shenzhen	475,000	PRD
Shanghai (SHA)	350,000	YRD
Chengdu	275,000	West
Kunming	175,000	West
Nanjing	150,000	West
Chongqing	100,000	West
Dalian	90,000	BB



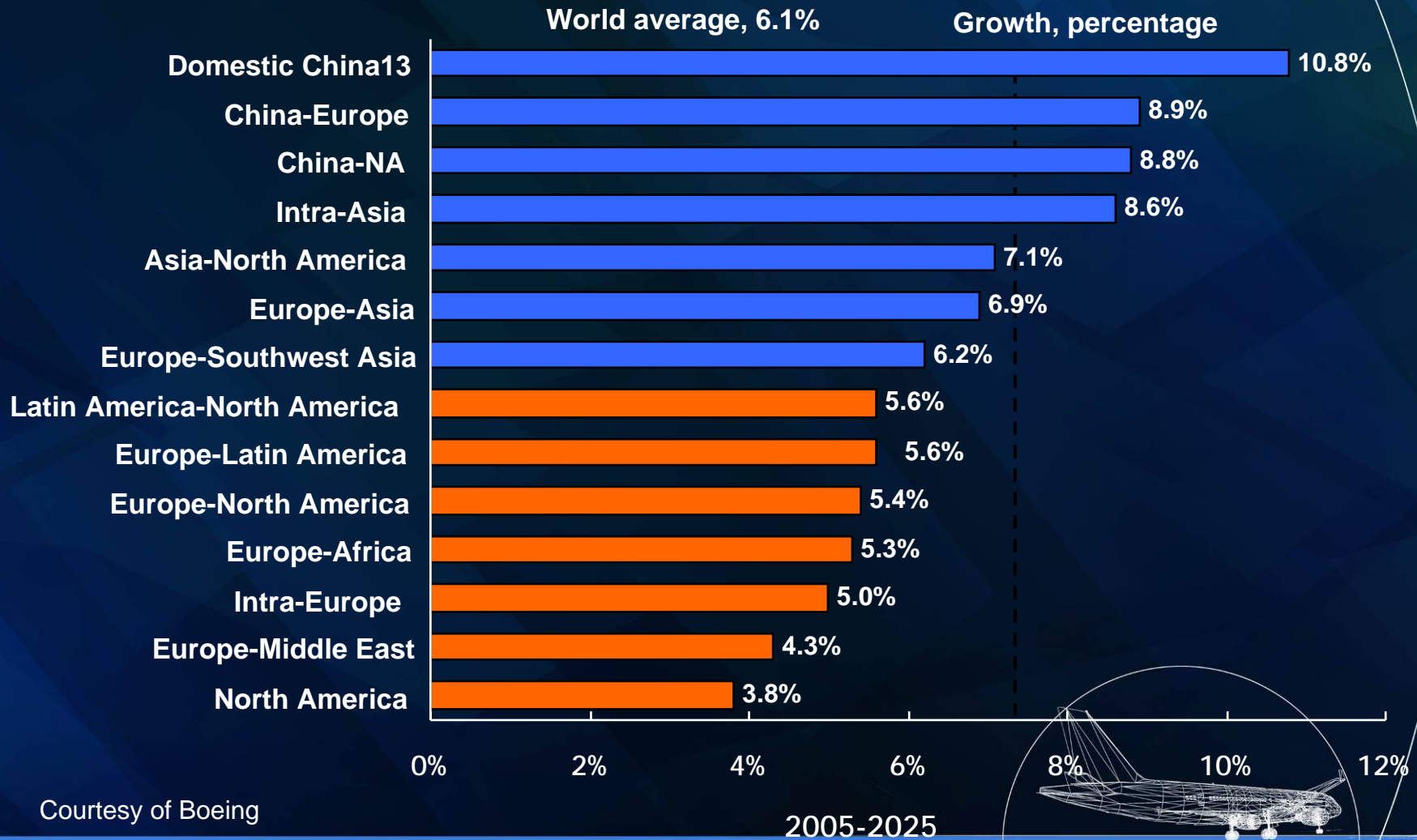
# Asian Cargo Markets Continue to Lead Industry Growth



Courtesy of Boeing



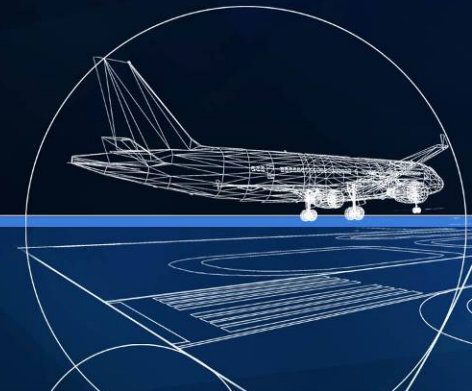
# China is the Fastest Growing Cargo Market In the Industry



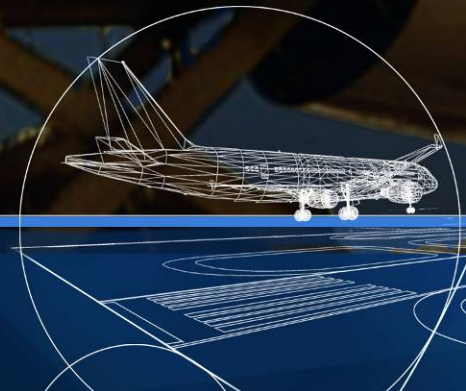
Courtesy of Boeing

# Future Strategies

- Aggressive roadway development
- Reduction of border constraints into Hong Kong
- Huge investment in public infrastructure in western provinces
- Creation of incentives for relocation and investment
- Staged development of new airport capacity



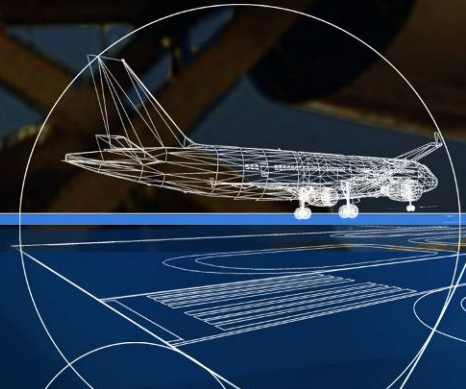
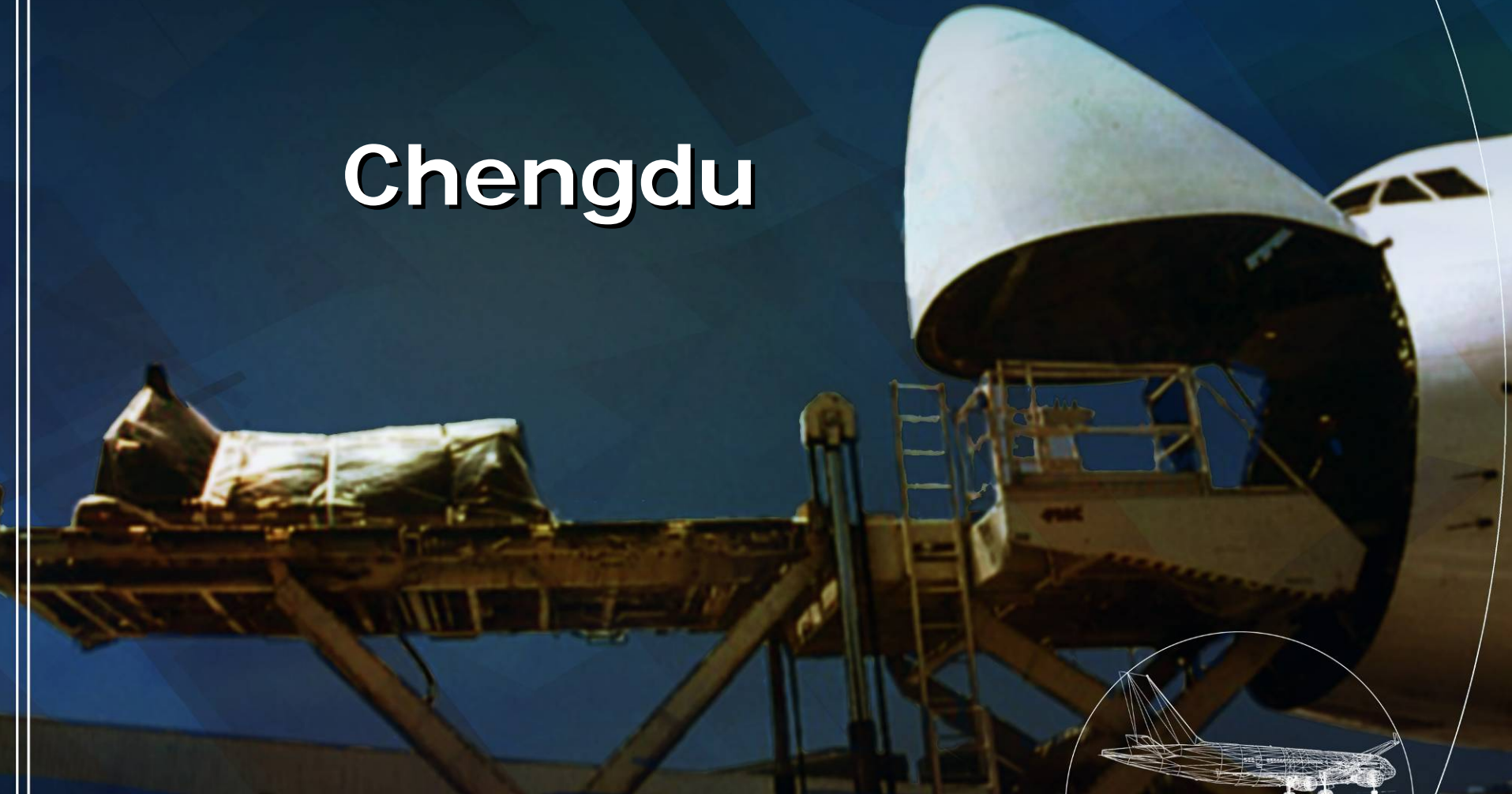
# Kunming

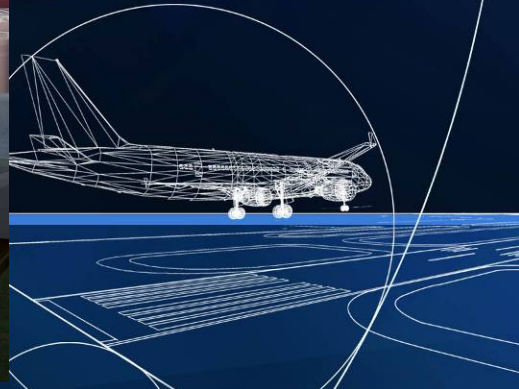




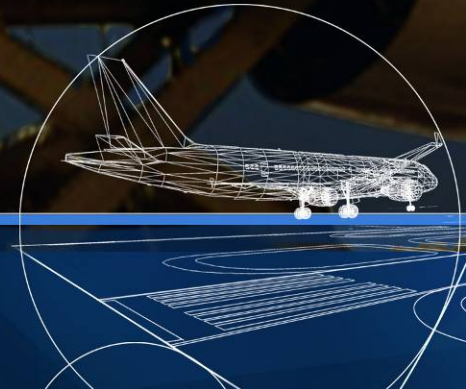


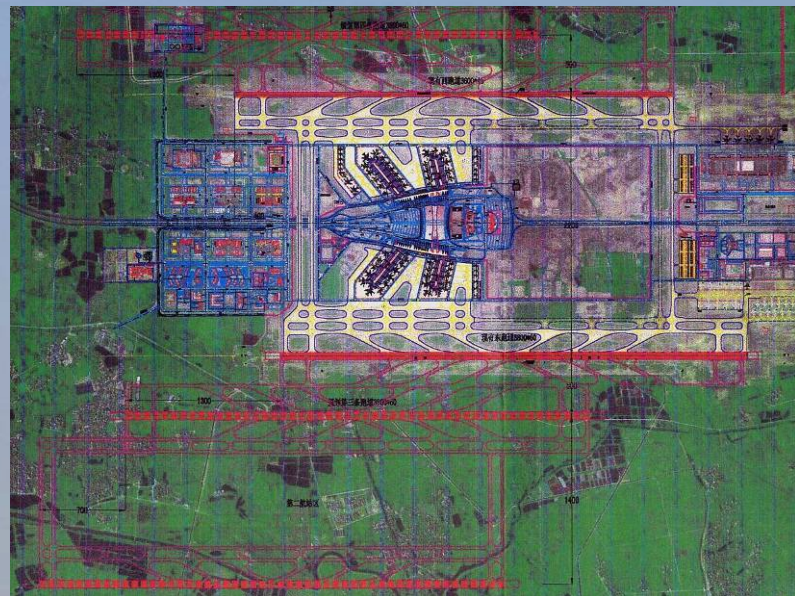
# Chengdu



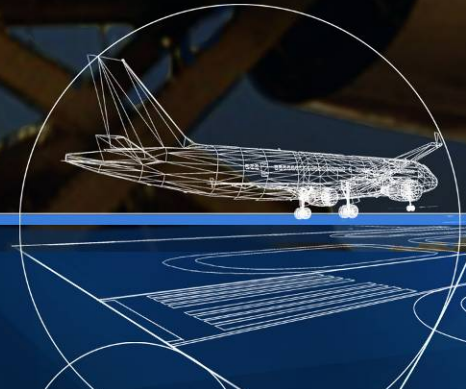


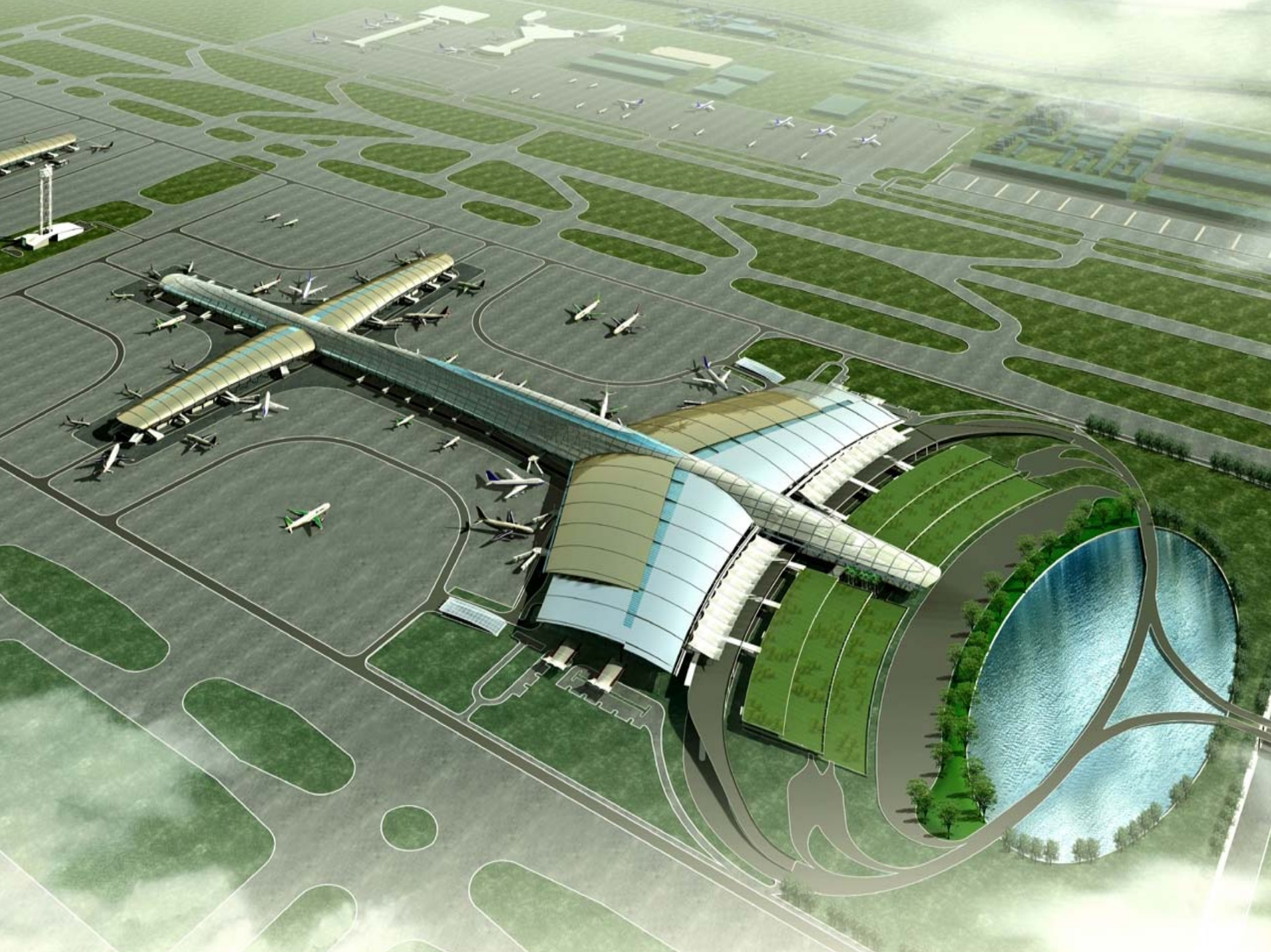
# Guangzhou





# Shenzhen





# Changsha

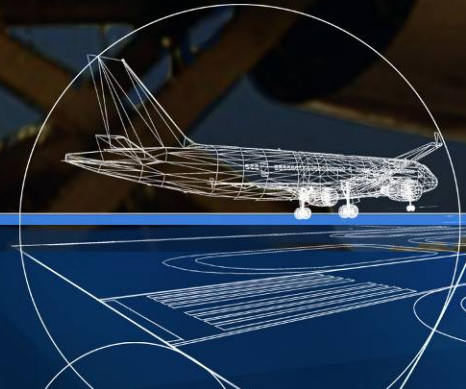
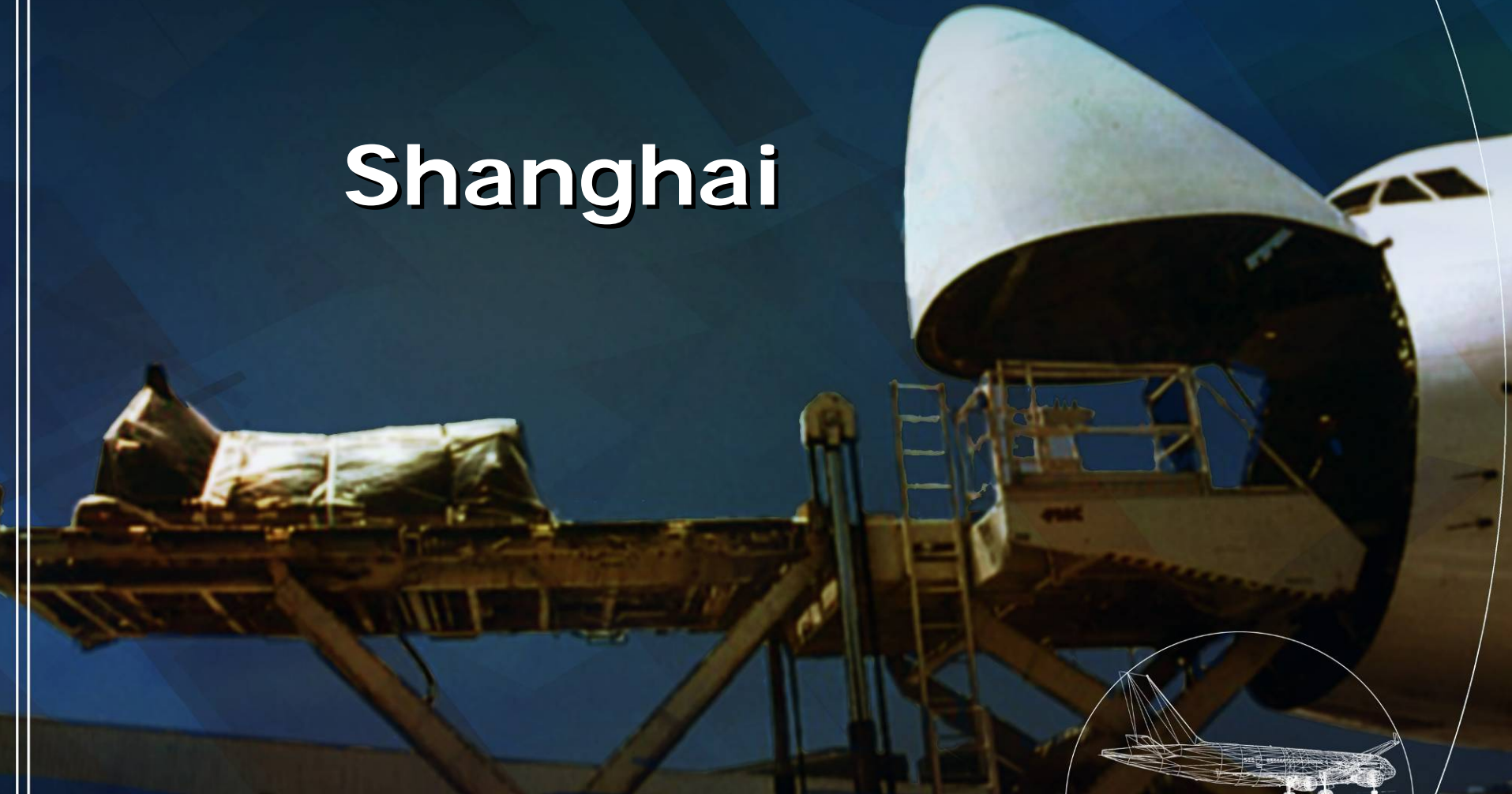




## Changsha Huanghua Airport

• 长沙  
Changsha

# Shanghai



Pudong - 1997



# Pudong in 2007





1998 – Construction Underway



# The Shanghai Connection

